МІНІСТЕРСТВО ОСВІТИ І НАУКИ, МОЛОДІ ТА СПОРТУ УКРАЇНИ
ХАРКІВСЬКА НАЦІОНАЛЬНА АКАДЕМІЯ
МІСЬКОГО ГОСПОДАРСТВА

МЕТОДИЧНІ ВКАЗІВКИ

до виконання самостійної та контрольної роботи

з дисципліни

“ІНОЗЕМНА МОВА ПРОФЕСІЙНОГО СПРЯМУВАННЯ”

(АНГЛІЙСЬКА МОВА)

(для студентів 2 курсу заочної форми навчання
освітньо-кваліфікаційного рівня бакалавр напряму підготовки
6.080101 «Геодезія, картографія та землеустрій»)
спеціальності “ Геоінформаційні системи та технології”

Харків - ХНАМГ – 2011

Методичні вказівки до виконання самостійної та контрольної роботи з дисципліни ”Іноземна мова професійного спрямування ” (англійська мова) для студентів 2 курсу заочної форми навчання напряму 6.080101 «Геодезія, картографія та землеустрій»./ Харк. нац. акад. міськ. госп-ва; уклад.: А. М. Крохмаль. – Х.: ХНАМГ, 2011. - 47с.

Укладач: А. М. Крохмаль

Методичні вказівки до виконання самостійної та контрольної роботи відповідають змісту програми учбової дисципліни “Іноземна мова (за професійним спрямуванням)” та націлені на формування навичок практичного володіння англійською мовою в обсязі загальної тематики необхідної для комунікативної спроможності в сферах професійного та ситуативного спілкування.

Рекомендовано для студентів 2 курсу заочної форми навчання.

Рецензент: старший викладач кафедри іноземних мов С.В.Кобяков

Затверджено на засіданні кафедри іноземних мов,
протокол №8 від 03.04.2011 р.

Методичні рекомендації для студентів

Перед тим як виконувати контрольну роботу студенту необхідно докладно вивчити граматичний матеріал, для чого надається список рекомендованих джерел з граматики англійської мови. Перекладаючи текст, слід користуватися англо-українським словником.

Роботи студентів повинні відповідати наступним вимогам:

а) перша сторінка зошита залишається вільною для рецензії викладача. У зошиті повинні бути поля для зауважень та рекомендацій рецензентів;

б) вся контрольна робота виконується в зошиті в *лінію*;

в) завдання (Tasks) переписуються в зошит; завдання (Tasks) перекладати рідною мовою не потрібно;

г) матеріал контрольної роботи слід розміщати у зошиті за наступним зразком:

Текст на англійській мові	Текст на рідній мові	Поля

д) виконуючи лексико-граматичні завдання кожне речення потрібно переписувати у зошит та перекладати на рідну мову;

е) перекладаючи *текст* з англійської мови на рідну, кожне речення слід писати *з нового рядка*: речення на англійській мові – з лівої сторони, а переклад – з правої сторони сторінки зошита.

Перевірена контрольна робота повинна бути виправлена студентом згідно з вказівками рецензента, а недостатньо засвоєні теми семестру слід проробити додатково перед усним заліком.

Якщо контрольна робота виконана без дотримання вказівок чи не повністю, вона повертається студенту без перевірки.

Студенти, які не захистили контрольну роботу, не допускаються до заліку (чи до екзамену) за відповідний навчальний період.

Номер варіанта, який виконує студент заочного відділення, визначається за останньою цифрою номера залікової книжки: 1, 2 – ***варіант 1***; 3, 4 – ***варіант 2***; 5, 6 – ***варіант 3***; 7, 8 – ***варіант 4***; 9, 0 – ***варіант 5.***

Приклад оформлення контрольної роботи:

Контрольна робота № … варіант .....

з дисципліни …….

……(англійська мова)

студента заочної форми навчання ……. курсу

спеціальності .....

……..
(прізвище, ім'я та по батькові)

шифр залікової книжки .....

Контрольне завдання 3

Для виконання контрольного завдання **3** необхідно засвоїти наступні розділи курсу англійської мови, використовуючи рекомендовані підручники:

1. Граматичні функції та значення слів ***that, one, it***.
2. Пасивний стан (The Passive Voice), форми дієслів Indefinite, Continuous, Perfect.
3. Функції дієслів ***to be, to have, to do***.
4. Прості неособові форми дієслова Інфінітив у функції а) підмета, б) частини

   присудка, в) означення, г) обставини мети, д) додаток.
5. Безсполучникове підпорядкування в означальних та додаткових реченнях.

Варіант 1

Task 1. Read the sentences and translate them into your native language. Underline and define the forms of Passive Voice.

1. This definition has emerged from an area of GIS research that has examined how GIS fits into society as a whole, including its institutions and organizations.
2. GIS can be used in decision making, especially in a public setting such as a town meeting, or on a community group Web site.
3. A basic difference between these types of information and the information that is collected into geographic information systems is that GIS information has associated with it an underlying geography, or descriptions of locations on the face of the earth.
4. Maps are drawn (whether by computer or not) on a flat surface such as paper.
5. Standard ways of listing coordinates are then called coordinate systems.

Task 2. Read the sentences and translate them into your native language. Underline the words *it*, *that*, *one* and define their function in the sentence.

1. Another GIS definition states that GISs are ‘automated systems for the capture, storage, retrieval, analysis, and display of spatial data.’
2. The GIS software adopts one of two strategies for dealing with the two types of data.
3. Jack Estes and Jeffrey Star defined a GIS as ‘an information system that is designed to work with data referenced by spatial or geographic coordinates.
4. It is a little more complex than it first seems, but with a little digression, we can quickly come up to speed, and even be experts.
5. The geoid is a figure that adjusts the best ellipsoid and the variation of gravity locally.

Task 3. Read the sentences and translate them into your native language. Underline the forms of the verbs *to have, to be, to d*o and define their functions.

1. A GIS can be seen as a set of tools for analyzing spatial data.
2. If a GIS is a toolbox, a logical question is 'What types of tools does the box contain?'
3. Most important, the method of geocoding stamps its form onto the data in such a way that many other GIS operations are affected afterwards.
4. A line longitude running from the north pole to the south pole-is called a meridian.
5. The grid is a surprisingly versatile way of storing data.

Task 4. Read the sentences and translate them into your native language. Underline the Infinitive and define its function.

1. These are, of course, computer tools, and a GIS can then be thought of as a software package containing the elements necessary for working with spatial data.
2. If we seek to work with spatial data, one definition of a GIS is the software in the box that gives us the geographic capabilities we need.
3. Several authors have tried to define a GIS in terms of what it does, offering a functional definition of GIS.
4. There is little consensus among those teaching GIS as to what the content for a course in GIS should be, although standardization efforts are under way.
5. **T**he power of the GIS is in allowing the attribute and the geographic or map information to be linked together in a useful way.

Task 5. Read the text and translate it into your native language.

A GIS has at least two parts: the attribute part and the map part. The attribute data, managed by their regular database manager, are little different from any other

type of statistical information when it comes to analysis. In this chapter we move away from the construction and management of data in a GIS to actual use of the information.To best understand information in the form of numbers, we must describe geographic data in methodical and quantitative ways, that is, with well-understood statistics. If this was as far as GIS went, however, there would be few advantages to GIS compared to any of the major computer statistical packages available to scientists.

What makes analysis within a GIS different is that the attribute data have established links to maps. Any statistic we can think of to describe the data then automatically has geographic properties and as a result can be placed on a map for visual processing. The situation is more fruitful than that, because we can use the geographical properties for statistical inquiry as well. This means that in addition to answering the question 'Where?' as far as the features is concerned, we can also ask 'Why is it there?' We can come up with some definitive answers to these questions and display the answers to the questions and analyses as maps. As this chapter shows, this can give the user an amazing amount of power when GIS - analysis is brought to bear on a problem.

Task 6. Answer the questions on the text in writing. Be ready to discuss them.

1. What two parts does a GIS have?
2. What is the attribute data?
3. What must we do to best understand information in the form of numbers?

Task 7. Look through the text again and find the words that correspond to the following definitions.

1. a depiction of all or part of the earth or other geographic phenomenon as a set of symbols and at a scale whose representative fraction is less that 1:1

   _____

3. the stage in science when measurements are sorted, tested, and examined visually for patterns and predictability _____

4. a characteristic of a feature that contains a measurement or value for the feature. _____
5. a single entity that composes part of a landscape_____
6. a collection of data organized in a systematic way to provide access on demand_____

Task 8. Use the words from the list below to fill in the blanks in the sentences. Underline the chosen option.

application present unique world tools
desert coast suburbs population native

1. Which is the largest city in the _____?
2. One third of the word's _____ consumes two thirds of the word's resources.
3. The new invention would have wide _____ in industry.
4. It's a long time since he has visited his _____ Poland.
5. Somalia is mostly _____.
6. They live in the _____.
7. We walked along the _____ for five miles.
8. The computer is now an invaluable _____ like questionnaires.
9. The committee will _____ its final report to Parliament in June.
10. Everyone's fingerprints are _____.

Варіант 2

Task 1. Read the sentences and translate them into your native language. Underline and define the forms of Passive Voice

1. Maps on common coordinate systems are automatically aligned with each other.
2. Something has been distorted to make the surface flat, usually scale, shape, area, or direction.

3. The formats of the data are documented formally, and the files are ASCII.
4. Features are handled in separate files—for example, hydrology, hypsography (contours and topographic features), transportation, and political.
5. Raster or grid data structures have formed the basis for many GIS packages.

Task 2. Read the sentences and translate them into your native language. Underline the words *it, that, one* and define their function in the sentence.

1. Goodchild defined geographic information science as 'the generic issues that surround the use of GIS technology, impede its successful implementation, or emerge from an understanding of its potential capabilities.'
2. Some systems use only one format exclusively, and provide utilities or import options to bring in and convert the data to the format to be used. Raster-based GIS programmes especially use this approach.
3. The first and foremost problem is that a flat map of all or part of earth's surface is necessarily on a map projection.
4. One pixel is the smallest unit displayable on a computer monitor.
5. It is an index value standing for an attribute that is stored separately in the attribute database.

Task 3. Read the sentences and translate them into your native language. Underline the forms of the verbs *to have, to be, to do* and define their functions.

1. Both approaches work and have their advantages and disadvantages.
2. A grid of parallels and meridians shown as lines on a map is called a graticule.
3. The Tagged Interchange Format (TIF) can use run length and other image compression schemes and has a number of different forms .
4. The data already exist and all we have to do is to find or buy them.

5. The second method involves having the computer ‘sense’ the map by scanning it.

Task 4. Read the sentences and translate them into your native language. Underline the Infinitive and define its function.

1. This means that pictures and especially maps can be a database, too.
2. Central to this map and attribute data use is finding a way to link the map with the attributes.
3. As we are using a computer, obviously the link should be in the form of numbers.
4. GIS gives us the power to move from one to the other of the descriptions of location with numbers.
5. It is important to get a feel for what the geographic numbers mean and how they correspond to places on both the earth and the map.

Task 5. Read the text and translate it into your native language.

The first and most significant factor in dealing with spatial data is that there are at least two spatial measurements, an easting and a northing. We could summarize spatial description, as describing two attributes simultaneously.

In the simplest and most basic way, we can duplicate the attribute descriptions above for the locational data to give spatial descriptions. In this case, we can treat the two separate parts of the coordinates, the eastings and the northings, as if they are each a single attribute, which indeed they are. Just as we began the discussion of describing the values of a single attribute by discussing the concept of a minimum and a maximum value for an attribute and the concept of a range, when the attributes describe coordinates, a first point is described by the minimum easting and the minimum northing, and a second point describes the corresponding maxima. The two points define a rectangle, whose two side lengths are the ranges in easting and northing, respectively, and that encloses all the points.

This is called the bounding rectangle of the points. It can be found by simply sorting the records by easting, and taking the first and last record, and then repeating for the northing.

In much the same way that we calculated means and standard deviations separately for the two GPS receiver's elevations, so also were they calculated for the latitudes and longitudes. These were first translated into decimal degrees, then summed and divided to find the average latitude and longitude for the eTrex and for the GPS48. The result of the two means is itself a point, with both a real geographic location and a special geographic name, the mean centre. This point is also sometimes called a centroid, a point chosen (in this case statistically) to represent a geographic distribution. Although the GPS data are a set of points, lines and area features can also have a centroid, selected in any one of several ways.

Task 6. Answer the questions on the text in writing. Be ready to discuss them.

1. What is the most significant factor in dealing with spatial data?
2. What two separate parts can we treat to give spatial descriptions?
3. What is called the bounding rectangle of the points?

Task 7. Look through the text again and find the words that correspond to the following definitions.

1. large or important enough to have an effect or to be noticed_____
2. the act or process of finding the size quantity or degree of something _____
3. happening or done at the same time as something else _____
4. an exact copy of something _____
5. to deal with or discuss something in a particular way _____

Task 8. Use the words from the list below to fill in the blanks in thesentences. Underline the chosen option.

contiguous features relation properties analysis
data pattern enquiry scale area

1. Both plans are drawn to the same _____.
2. This _____ was collected from 69 countries.
3. Scientific _____ is a very important process.
4. Compare the physical _____ of the two substances.
5. The software has no particular distinguishing _____.
6. This system sets the _____ for others to follow.
7. The two countries are _____.
8. There is heavy traffic in the downtown _____ tonight.
9. The book is an _____ of poverty and its causes.
10. The fee they are offering bears no _____ to the amount of work involved.

Варіант 3

Task 1. Read the sentences and translate them into your native language. Underline and define the forms of Passive Voice.

1. A flat file is how numbers are stored in tables or in a spreadsheet.
2. We know in advance what sort of information is stored in each attribute, whether it is text or numbers, how large the numbers are and so on. We can then write a sequence into the file.
3. The primary advantage of having a topologically consistent map is that when two or more maps must be overlain, much of the initial preparation work has been done.
4. What still has to be established are where new points must be added along lines to become nodes, and how to deal with any small or sliver polygons that are created.

5. Many borders between regions, states, counties and so on match along lines such as rivers, which are generalized differently at different map scales.

Task 2. Read the sentences and translate them into your native language. Underline the words *it, that, one* and define their function in the sentence.

1. Traditionally in GIS and computer cartography, there were two basic types of data model for map data and only one for attribute data.
2. Goodchild also noted that this involved both research on GIS and research with GIS.
3. We have said little yet about the attribute data other than that its model is as a flat file.
4. As long as the data are valid, it is a very powerful way to store data for map features.
5. When reading the data back in, we just place that data back into a raster grid of the correct dimensions.

Task 3. Read the sentences and translate them into your native language. Underline the forms of the verbs *to have, to be, to do* and define their functions.

1. Lines and areas, however, have variable numbers of points.
2. Ideally, the entire digitizing process should be finished at one sitting.
3. Field data are collected using standard surveying methods.
4. Attribute table has attributes with their names.
5. Values could be text, number, decimalvalue or units such as meters, vehicles per hour, and so on.

Task 4. Read the sentences and translate them into your native language. Underline the Infinitive and define its function.

1. With this feature comes the fact that we can now manage the data using the underlying geography, the attributes, or both.

2. This means that to understand GIS, we need to know a little cartography, which is the science that deals with the construction, use and principles behind maps and map use.
3. The earth can be modeled as a sphere, an oblate ellipsoid, or a geoid.
4. A raster data model uses a grid, such as the grid formed on a map by the coordinate system, as its model or structure to hold the map data.
5. If we wished to sort the data we could renumber the lines in the file.

Task 5. Read the text and translate it into your native language.

Numbers that describe features are useful, but the purpose of geographic inquiry is to examine the relationships between geographic features collectively and to use the relationships to describe the real-world phenomena that the map features represent. The geographic properties were size, distribution, pattern, contiguity, neighborhood, shape, scale, and orientation.

Each spatial relation begs three fundamental questions: (1) How can two maps be compared with each other?; (2) How can variations in geographic properties over a single area or GIS data set be described and analyzed?; and (3) How can we use what we have learned using the analysis to explain and therefore predict future maps of the geography in question? The third question may be as simple as selecting the best route from A to B on a map, or as complex as modeling the future growth of cities based on their size, shape, and development over time. GIS gives us the capability of doing both, and anything in between. In terms of comparing maps, a simple way is to bring multiple maps into coregistration and then merge their themes to make a composite. This is what is meant by map overlay analysis. An example of map overlay will follow a first discussion of spatial models and how GIS adds to their construction, examination, and use.

Task 6. Answer the questions on the text in writing. Be ready to discuss them.

1. What is the purpose of geographic inquiry?
2. What are the geographic properties?

3. What fundamental questions does each spatial relation beg?

Task 7. Look through the text again and find the words that correspond to the following definitions.

1. an excellent example to copy _____
2. the act of asking questions or collecting information about somebody or something _____
3. the way in which two or more things are connected_____
4. a quality or characteristic that something has _____
5. the fact of touching or being next to something _____

Task 8. Use the words from the list below to fill in the blanks in the sentences. Underline the chosen option.

congress program purchased software package history background specific philosophy survey sophisticated

1. The system came with a database _____.
2. This international _____ was very interesting.
3. Geological techniques are becoming more _____ all the time.
4. The equipment can be _____ from your local supplier.
5. Her _____ of life is to take every opportunity that presents itself.
6. Load the _____ into the computer.
7. Many people throughout _____ have dreamt of a world without war.
8. The money was collected for a _____ purpose.
9. Can you give me more _____ on the company's financial position?
10. First of all you must do a geological_____.

Варіант 4

Task 1.Read the sentences and translate them into your native language. Underline the forms of Passive Voice.

1. In some cases, this capability is included within the GIS package.
2. Tape should be placed at each map corner after ***smoothing*** the map, and care should be taken to deal with ***folds*** and the ***crinkles*** that develop with certain papers during periods of high humidity.
3. Historically, many different means have been used to geocode.
4. Since special-purpose digitizing hardware became available, and especially since the cost of this hardware fell substantially, virtually all geocoding has been performed by computer.
5. Digitizing mimics the way maps were drafted by hand and involves tracing the map over using a cursor while it is taped down onto a sensitized digitizing tablet.

Task 2. Read the sentences and translate them into your native language. Underline the words *it, that, one* and define their function in the sentence.

1. Each grid cell in the grid is one map unit, often chosen so that each grid cell shows on the GIS map as one screen display point or ***pixel*** or on the ground as a whole-number increment in the coordinate system.
2. It is now easy to see what some of the database operations actually do.
3. Goodchild noted that the level of interest depends on innovation, that it is hard to sustain a multidisciplinary science, and that at the core of the science.
4. The American Standard Code for Information Interchange are maps commonly used characters such as the alphabet onto one-byte-long sequences of bits.
5. A GIS is scaleless because maps can be enlarged and reduced and plotted at many scales other than that of the original data.

Task 3. Read the sentences and translate them into your native language. Underline the forms of the verbs *to have, to be, to do* and define their functions.

1. A record usually has a value in every one of the columns.
2. Many early geocoding systems had only limited editing capabilities.
3. Anything we can do in the geocoding process that reduces errors, or that makes errors easily detectable, we should indeed do.
4. The connection between lines, known bordering of areas, and inclusion of points in areas is called map topology.
5. The GIS often allows check plots to be generated that simply plot the label or identification number of the key within a polygon or next to a line.

Task 4. Read the sentences and translate them into your native language. Underline the Infinitive and define its function.

1. For example, we can search the data both by the attributes and by using the map .
2. On a land use map, 1 could stand for forest, 2 for farmland, and 3 for urban.
3. We need to number off or 'identify' the lines and store an attribute for the whole line in the flat file.
4. If we called the lines ***arcs,*** for example, we might need both a polygon attribute table file, and a file of arcs by polygon.
5. It is the logical structure of the data that requires us to have a mental 'model' of how the physical data represent a geographic feature.

Task 5**. Read the text and translate it into your native language.**

A map can be defined as a graphic depiction of all or part of a geographic realm in which the real-world features have been replaced by symbols in their correct spatial location at a reduced scale. Maps are the paper storehouses of spatial information that we use as sources of data for GIS. They are also the final

stage in GIS work, the means by which the information being extracted, analyzed, and reconstructed using the powers of the GIS is at last communicated to the GIS user or the decision maker who relies on the GIS for knowledge. Maps within a GIS can be temporary, designed merely for a quick informative glance, or permanent, for presentation of ideas as a substitute for a picture or a report.

Just as a map has a structure, so that structure can vary according to which media we use for map display. GISs usually use the computer monitor to display a map, rather than the traditional paper. Only now, after many years of computer mapping, are cartographers beginning to understand how map design depends on the display medium. The GIS has been a major reason why this has become an important consideration.

Over 3000 years of cartographic history, cartographers have designed numerous ways of showing data on a map. One way to divide up the methods is to look at those that show attributes by their geometric dimension, so that we can have point maps, line maps, and area maps, plus maps that show a three-dimensional view. Many maps show some or all of the types of features at the same time. These are often called general purpose maps. Thematic maps show just one or two themes or layers of information, often coded, colored, or grouped, for convenience. In this section we take a look at the breadth of map types available.

Task 6. Answer the questions on the text in writing. Be ready to discuss them.

1. What is a map?
2. What kinds of maps within a GIS can be?
3. What is a general purpose map?

Task 7. Look through the text again and find the words that correspond to the following definitions.

1. a map designed for use as an intermediate product in the GIS process, and not usually subject to the normal map design sequence _____

2. a depiction of all or part of the earth or other geographic phenomenon as a set of symbols and at a scale whose representative fraction is less than 1:1 _____
3. a map designed primarily for reference and navigation use _____
4. a map designed for use as a permanent end product in the GIS process _____
5. a map designed primarily to show a 'theme', a single spatial distribution or pattern, using a specific map type _____

Task 8. **Use the words from the list below to fill in the blanks in thesentences. Underline the chosen option.**

storage project exchangeable added minor metadata batching macros address matching microcomputer

1. These may be some _____ changes to the schedule.
2. You must know everything about the _____ and retrieval of in formation.
3. We use these languages which are usually command-line programs or _____.
4. My friend has a _____.
5. These tokens are _____ for CD's and cassettes only.
6. You need set up a _____ to computerize the library system.
7. The GIS interface is tedious without some way of _____commands.
8. A new wing was _____ to the building.
9. _____ a mailing list would convert the mailing of characteristics of the places on the list.
10. _____ usually includes the date, source, map projection etc. as well as data about the format and structure of the data set.

Варіант 5

Task 1. **Read the sentences and translate them into your native language. Underline the forms of Passive Voice.**

1. Two technologies have evolved to get maps into the computer.
2. After the map is taped to the tablet, it should not be moved without entering the control points again, and it is preferable to perform this step only once per map.
3. Exchanging data can be thought of in two ways.
4. The lower edge, which will have the cursor and your right sleeve dragged over it many times, should be taped over its entire length.
5. As an absolute minimum, data for lines and areas can be processed automatically for consistency, and any unconnected lines or unclosed polygons can be detected and signaled to the user.

Task 2. Read the sentences and translate them into your native language. Underline the words *it, that, one* and define their function in the sentence.

1. A map data format based on zero-, one-, and two-cells, used by the U.S. Census Bureau in the street-level mapping of the United States.
2. Alternatively, the system can support the native format of each type of data, and it can require the GIS operator to explicitly change formats when operations requiring compatibility of formats are executed.
3. Some packages allow the extraction of a line from one map to be ‘frozen’ for use on another.
4. A third case is that the maps don't even exist, and here we often turn to remote sensing, aerial photography, or field data collection by surveyors or the global positioning system (GPS), to get our first map of a new location.
5. The second method involves having the computer ‘sense’ the map by scanning it.

Task 3. Read the sentences and translate them into your native language. Underline the forms of the verbs *to have, to be, to do* and define their functions.

1. Each attribute has more than simply a name associated with it.
2. The maps and the tedious process of checking them should never be skipped.
3. Logical consistency can be checked most easily for topological data.
4. Topologically, data can be checked to see that all chains intersect at nodes.
5. Attributes can be checked to ensure that they fall within the correct range.

Task 4. Read the sentences and translate them into your native language. Underline the Infinitive and define its function.

1. If the two sorts of information are linked, we can use either one to search the other, or we can use them together.
2. There are few ways, however, to store point, line, and area data that are as efficient.
3. These operations would be much faster if we could encode the numbers in binary or sort them in the file so that the most commonly referenced records were first in the file.
4. Obviously, to save space we could write the files in binary.
5. They use the ground coordinates in UTM, truncated to the nearest 10 meters to reflect their locational precision and to save space.

Task 5. Read the text and translate it into your native language.

The last stage in the mapping process is the conversion of the GIS data into a map design. Note that for any map type we can have an almost infinite number of choices of symbols, fonts, colors, line thicknesses, and so on. Selecting the 'best' design can make an enormous difference in the effectiveness of the map. If a map has taken a large amount of work to generate, it is well worth the GIS user's effort to make doubly sure that the design is sound.

Some characteristics of the design are predetermined by the choice of the type of map. Primarily, the design stage consists of devising a balanced and effective set of cartographic elements to make the map. A trial-and-error interaction between a map design and a set of symbols or colors comes into play, called the design loop. The GIS makes this process possible in the first place by supplying the tools to create, modify, and recreate the map.

It is important to place the map elements correctly. Placement of the elements is usually in one of two ways: first, by having the GIS draw a map, then passing it to a graphic design program and interacting with the map in a design loop**;** and second, especially in a GIS, by editing a set of macro-like commands that move elements to specific places in the map space. This technique is less efficient and involves many traverses through the design loop.

Most cartography texts state that the cartographer should aim for harmony and clarity in the composition—visual balance and simplicity. This comes from experience and an aesthetic sense that can take years to perfect. For the beginner in GIS, MacEachren (1994) and Dent (1996) give fine summaries of the design experience of professional cartographers.

Task 6. Answer the questions on the text in writing. Be ready to discuss them.

1. What is the last stage in the mapping process?
2. What does the design stage consist of?
3. What is the aim of most cartography texts?

Task 7. **Look through the text again and find words that correspond to the following definitions.**

1. the appearance that things have that results from the way in which they reflect light _____
2. a consistent design for the display of the full set of English or other language characters, including special characters such as punctuation and numbers _____

3. an abstract graphic representation of a geographic feature for representation a map _____
4. the iterative process in which a GIS map is created, examined for design, improved, and then replotted from the modified map definition until the user is satisfied that a good design has been reached _____
5. the set of choices relating to how a map's elements are laid out, how symbols such as colors are selected, and how the map is produced as a finished tangible product_____

Task 8. **Use the words from the list below to fill in the blanks in thesentences. Underline the chosen option.**

focus choice example vectors system intuitive meaningless process automated engineering

1. The entire manufacturing process has been _____.
2. He had an _____ sense of what the reader wanted.
3. Can you give me an _____ of what you mean?
4. The British educational _____ is very popular all over the world.
5. It was the main _____ of attention at the meeting.
6. We are in the _____ of selling our house.
7. The bridge is a triumph of modern _____.
8. We fill up our lives with _____ tasks.
9. Acceleration and velocity are both _____.
10. We are faced with a difficult _____.

Контрольне завдання 4

Для того, щоб виконати контрольне завдання **4**, необхідно повторити наступні розділи курсу англійської мови:

1. Складні форми інфінітиву (Present Infinitive Passive, Perfect Infinitive Active/ Passive). Звороти, рівнозначні підрядним реченням: об'єктний дієприкметниковий комплекс, суб'єктний дієприкметниковий комплекс.
2. Прислівник (Participle I, Participle II; Perfect Participle Active/Passive). Залежний та незалежний дієприкметниковий комплекс.
3. Умовні підрядні речення.
4. Узгодження часу.

Варіант 1

Task 1. Give the written translation of the following sentences into your native language. Underline and define the forms of the Infinitive .

1. A first question that might be asked about the database is 'What are the extremes of the data?'
2. Obviously we need to see what a good reading looks like and how it can be distinguished from the remainder of the readings.
3. The final step that we can put these elevation values through is to do statistical tests.
4. We could consider our sample as representative of all coastal area elevations in Southern California.
5. We can use a statistical model of the bell curve, called the standard normal distribution.

Task 2. Give the written translation of the following sentences into your native language. Underline the forms of Participle I and Participle II.

1. A histogram is a two-dimensional plot of attribute values grouped by magnitude and the frequency of records in that group, shown as a variable-length bar.
2. The values were converted to meters using the same tables as above, and the square root of the sum taken.
3. We can also divide the area of the bounding rectangle into the area, a space-filling index with a maximum value of 1.
4. For coordinates, data extremes define the two corners of a bounding rectangle.
5. A centroid is any point chosen to represent a higher-dimension geographic feature, of which the mean centre is only one choice.

Task 3. **Put the verbs in brackets into the correct tense form and underline them. Mind the Sequence of Tenses.**

1. A first descriptive question about the data beyond the ranges (to be)_____: What (to be)_____the elevations of the point that were sampled?
2. The numbers in the statistical table (to be)_____ the amount of area beneath the standard normal curve that (to correspond) _____ to probabilities.
3. For coordinates, the means and standard deviations (to correspond)_____ to the mean centre and the standard distance, both of which (to be)_____ good descriptors of spatial properties**.**
4. Over the years, the designers of GIS and computer mapping packages (to devise)_____ an amazing number of ways that maps can (to convert)_____ into numbers.

Exercise 4. Read the text. Find the English equivalents to the following terms.

1. настольное картографирование _____

2. предметная карта _____
3. диаграмма линий уровня
4. _____
5. диаграмма поперечного сечения _____
6. трехмерный _____
7. подходящая цветовая схема _____
8. ошибочная карта, карта с ошибками _____

Most of the display capabilities of GISs have been covered. GIS systems need to be able to perform what has become called *desktop mapping,* generating geographical and thematic maps so that they can be integrated with other functions. GISs typically can create several types of thematic mapping, including proportional symbol maps; and they can draw isoline and cross-sectional diagrams when the data are three dimensional.

Almost all GIS packages now either allow interactive modification of map elements moving and resizing titles and legends—or allow their output to be exported into a package that has these capabilities, such as Adobe Illustrator or Corel Draw. A very limited few GIS packages include cartographic design help in their editing of graphics, defaulting to suitable color schemes, or notifying the user if an inappropriate map type is being used for the data. This would be a desirable feature for many of the GISs on today's market and could avoid many tasteless or erroneous maps before they were created.

Exercise 5. Complete the sentences with the following words:

statistics analysis information histogram database geography GIS map features

1. For this _____ we need some _____.
2. According to official _____ the disease killed over 500 people.
3. An interesting _____ of the city is the old market.
4. The book is an _____ of poverty and its causes.

5. Can you find Clack hill on the _____?
6. For further _____, write to us at this address.
7. Kim knew the _____ of New York City very well.

Exercise 6. Read and translate key terms and definitions.

Histogram – a graphic depiction of a sample of values for an attribute, shown as bars raised to the height of the frequency of records for each class of group of values within the attribute.

GIS – geographic information systems.

Geography – a field of study based on understanding the phenomena capable of being described and analyzed with a GIS.

Statistics – a collection of information shown in numbers.

Information – facts or details about somebody or something.

Task 7. Read the text. Write down the text and give the written translation into your native language.

In the early days of GIS, much criticism was made of the fact that GIS software rarely came with any true analytical options. As we have seen, the basic tools of description are those of arithmetic and statistics, and the tools of modeling involve allowing the encoding of a model or formula into the system. Omitted here have also been models based entirely on the geographic distribution. Many models work on network flows, dispersion in two - or three dimensional spaces, hierarchical diffusion, or probabilistic models based on weights determined by buffers, and so on. This sort of model is manageable in a GIS using the tools of retrieval: overlay, buffering, and the application of spatial operators. Even a simple model, however, can become a quite lengthy sequence of steps for the GIS's user interface.

Almost all GIS packages allow operations to be bundled together as macros or as sequences of operations as part of a model, such as in the GISMO options. Although this goes a long way toward routine analysis, exploratory GIS data analysis is still something of an art. Many operations can be performed in the

database manager only, and often GIS users move the data from the database manager into a standard statistical package such as SAS (Statistical Analysis System) or SPSS (Statistical Package for the Social Sciences) for analysis. One GIS (Arc/Info) offers a direct link to another statistical package (S-Plus) as an option.

Task 8. Translate the following sentences into English.

Геоінформаційні системи (ГІС) - це інтегровані в єдиному інформаційному середовищі електронні просторово-орієнтовані зображення (карти, схеми, плани тощо) і бази даних (БД). В якості БД можуть використовуватися таблиці, паспорти, ілюстрації, розкладу і т. п. Така інтеграція значно розширює можливості системи і дозволяє спростити аналітичні роботи з координатно-прив'язаної інформацією.

ГІС характеризуються такими позитивними моментами:

• наочність представлення семантичної інформації з БД за рахунок відображення взаємного просторового розташування даних

• збільшення інформаційної ємності продукту за рахунок зв'язку просторово-орієнтованих зображень із семантичною інформацією з БД

• поліпшення структурованості інформації і, як наслідок, підвищення ефективності її аналізу та обробки

Варіант 2

Task 1. Give the written translation of the following sentences into your native language. Underline and define the forms of the Infinitive .

1. This distribution, provided in most statistical textbooks, allows us to look up the standard deviation and the number of records.
2. We can determine whether the largest and smallest measured elevations are reasonable.

3. GIS data description is different from statistics because the results can be placed onto a map for visual analysis.
4. A test of means can establish whether two samples from a population are different from each other, or whether the different measures they have are the result of random variation.
5. The value plotted for each point is the difference in latitude and longitude for each point, squared to get rid of negatives

Task 2. Give the written translation of the following sentences into your native language. Underline the forms of Participle I and Participle II.

1. GIS statistical computations are most often done using retrieval options such as buffer and spread, or by manipulating attributes with arithmetic commands.
2. One of the oldest analytical methods used in GIS is map overlay.
3. There are many ways that the conversion of a visual or printed map to a set of digits can be done.
4. Retrieval operations involve searching for segments or nodes, adding or deleting nodes, redirecting flows, and routing.
5. GIS systems need to be able to perform what has become called desktop mapping, generating geographical and thematic maps so that they can be integrated with other functions.

Task 3. **Put the verbs in brackets into the correct tense form and underline them. Mind the Sequence of Tenses.**

1. Quite likely, the reception problems of the GPS system _____(to have) something to do with it but there is also clearly a measurement error in terms of accuracy that far _____(to exceed) the precision of the elevation reading.
2. We could safely _____(to eliminate) these numbers and probably correctly _____(to believe) them to be wrong.

3. If we _____(to have) two readings only, and they disagree, we _____(probably to average) them.
4. An advantage is that this _____(to be) a ‘real’ typical value because it _____(to be) an actual part of our data set.

Exercise 4. Read the text. Find the English equivalents to the following terms:

1. система управления базой данных _____
2. набор программного обеспечения _____
3. формат плоского файла _____
4. ячейки памяти _____
5. ввод данных _____
6. функции поиска _____
7. сортировка данных _____

Much of the power of GIS software comes from the ability to manage not just map data but also attribute data. Every GIS is built around the software capabilities of a database management system (DBMS), a suite of software capable of storing, retrieving selectively, and reorganizing attribute information. The database manager allows us to think that all the data are available, that the data are structured in a simple flat-file format, and that they constitute a single entity. In fact, the database manager may have partitioned the data between files and memory locations and may have structured it in any one of several formats and physical data models.

A database manager is capable of many functions. Typically, a DBMS allows data entry, and data editing, and it supports tabular and other list types of output, sometimes independent of the GIS. Retrieval functions always include the ability to select certain attributes and records based on their values. For example, we can start with a U.S. database, and select out all records for states containing cities with over one million inhabitants, forming a new database that is wholly enclosed by the original and that duplicates part of it. We can also perform

functions such as sorting data by value, and retrieving a selected record by its identification, such as a name or a number.

Exercise 5. Complete the sentences with the following words:

temporally thematically permanent reference map
topographic map map network map

1. A _____ is often used as reference information behind GIS map layers.
2. Can you find Black Hill on the _____?
3. The accident has not done any _____ damage.
4. A _____ shows the simplest properties of the map data.
5. The maps have been grouped _____.
6. More than half the staff is _____.
7. A _____ shows a set of connected lines with similar attributes.

Exercise 6. Read and translate key terms and definitions.

Attribute – a quality or feature of somebody or something.

Concept – an idea or a principle that is connected with something.

Range – the distance over which something can be seen or heard.

Deviation – the act of moving away from what is normal or acceptable.

Latitude – the distance of a place north or south of the equator.

Task 7. Read the text. Write down the text and give the written translation into your native language.

One of the oldest analytical methods used in GIS is map overlay. Map overlay is the set of procedures by which maps with different themes are brought into geometric and scale alignment so that their information can be cross referenced and used to create more complex themes. We have met the method already several times, and should recall that the maps to be overlain must be of the same spatial extent, on the same map projection and datum, be at comparable granularity (that

is, the spatial units, whether pixels or polygons, should be about the same average size), and if the layers are to be used with map algebra, at the same raster grid size and resolution.

The power of the GIS is in handling the geometry of the overlay process. Handling and preparing the themes is up to the GIS analyst. Under the simplest possible configuration, GIS layers are all converted to binary maps, and an overlay then sifts the map space to leave open the areas that satisfy the selection criteria in use. This is the case in the simple overlay analysis and duplicates in the GIS methods that were worked out using transparent overlay maps and blacked out areas on the transparencies. Many of these methods date back to the turn of the twentieth century.

Task 8. Translate the following sentences into English.

Традиційний набір функцій ГІС при роботі з картою включає: показ карти в різних масштабах, вибір набору шарів інформації для показу, залежність зовнішнього вигляду об'єктів від їх семантичних характеристик, оперативне отримання інформації про об'єкт при виборі його курсором миші, можливість роздрукувати будь-яких фрагментів карти. Перерахувати всі сфери можливого застосування ГІС важко. Найбільшого поширення вони одержали в наступних галузях:

• землеустрій (земельні кадастри)

• муніципальне господарство

• енергетика

• транспорт і зв'язок

На вітчизняному ринку створення ГІС стримується дорожнечею спеціалізованих програмних засобів, тривалими термінами розробки і високими вимогами до "комп'ютерної"кваліфікації персоналу.

Варіант 3

Task 1. Give the written translation of the following sentences into your native language. Underline and define the forms of the Infinitive.

1. This distribution, provided in most statistical textbooks, allows us to estimate the odds against getting this elevation measurement given the tabulated standard deviation.
2. A useful description of a line could be the ratio of actual line length divided by the start-to-end node length.
3. The direction could be taken as the clockwise angle bearing from north.
4. The value would have a big variance along a curved or wiggly line.
5. Simplest to measure with a GIS are the area in square meters, the length around the boundary, the number of points in the boundary, the number of holes.

Task 2. Give the written translation of the following sentences into your native language. Underline the forms of Participle I and Participle II.

1. GISs typically can create several types of thematic mapping, including proportional symbol maps; and they can draw isoline and cross-sectional diagrams when the data are three dimensional.
2. The more numbers we have, the more we can see what the typical amount of variation is, that is, how corrupted are the readings by a random amount of error.
3. Patterns are regular, patchwork, repetitive, or swirling.
4. A centroid is any point chosen to represent a higher-dimension geographic feature, of which the mean centre is only one choice.
5. The power of the GIS is in handling the geometry of the overlay process. Handling and preparing the themes is up to the GIS analyst.

Task 3. **Put the verbs in brackets into the correct tense form and underline them. Mind the Sequence of Tenses.**

1. If we _____(to have) two readings only, and they disagree, we _____(to average) them.
2. We _____(to meet) the method already several times, and should recall that the maps to be overlain _____(must be) of the same spatial extent
3. One of the greatest strengths of a GIS _____(to be) that it can place real-world data into an organizational framework that _____(to allow) numerical and statistical description and permits logical extension into modeling.
4. The organization of the map into digits (to have)_____ a major impact on how we (to capture)_____,(to store)_____, and (to use)_____ the man data in a GIS.

Exercise 4. Read the text. Find the English equivalents to the following terms.

1. резкое изменение узловых точек _____
2. тождественные координаты _____
3. разлагать на составляющие _____
4. цельная, монолитная (база данных) _____
5. разрыв, отсутствие непрерывности _____
6. минимальное расхождение _____
7. допустимое отклонение _____

Other functions typical of an editor are *node snapping,* in which points that are close to each other and that should indeed be the same point, such as the endpoints of a line segment, are automatically placed into the graphic database with the identical coordinates; *dissolve,* when duplicate boundaries or unnecessary lines (e.g., the digitized edges of adjacent category-type maps) are eliminated automatically or manually; and *mosaicing* or ‘zipping,’ in which adjacent map sheets scanned or digitized separately are merged into a seamless database without

the unnecessary discontinuities caused by the lack of edge matching of the paper maps. For example, a major road that crosses two map sheets does not need to be represented as two separated features in the final GIS database.

Another important editing function is the ability to deal with map *generalization.* Many digitizing modules of GIS systems, and certainly scanning, generate far more; points than are necessary for the use of the GIS. This extra detail can complicate data reformatting and display, slow the analysis process, and lead to memory problems on the computer. Many GIS packages allow the user to select how much detail to retain in a feature. Most will retain points that have a minimum separation and snap together all points within a fuzzy tolerance.

For point data sets, most GIS packages will eliminate or average duplicate points with the same coordinates. Some will allow *line generalization,* using any one of many algorithms that reduce the number of points in a line.

Exercise 5. Complete the sentences with the following words:

design loop symbols fount credits colours
map design cartographic elements clarity figure

1. For this map we need some definite _____.
2. The _____ of that map helped me to find the way.
3. This process is called the _____, because first we design a map and then
set of _____ and _____.
4. A _____ is the last stage in the mapping process.
5. The _____ are not cited on this map.
6. On a map of New York State, the state is the _____, and surrounding states,
though shown and labeled, are part of the ground and may be toned down.
7. The neat line, legend, scale are the _____.

Exercise 6. Read and translate key terms and definitions.

Feature – a single entity that composes part of a landscape.

Scale – the geographic property of being reduced by a representative fraction.

Area – a two–dimensional feature represented by a line closed on itself to form a boundary.

Data – a set of measurements or other values, such as text for at least one attribute and at least one record.

Analysis – the stage in science when measurements are sorted, tested and examined visually for patterns and predictability.

Task 7. Read the text. Write down the text and give the written translation into your native language.

One of the oldest analytical methods used in GIS is map overlay. Map overlay is the set of procedures by which maps with different themes are brought into geometric and scale alignment so that their information can be cross referenced and used to create more complex themes. We have met the method already several times, and should recall that the maps to be overlain must be of the same spatial extent, on the same map projection and datum, be at comparable granularity (that is, the spatial units, whether pixels or polygons, should be about the same average size), and if the layers are to be used with map algebra, at the same raster grid size and resolution.

The power of the GIS is in handling the geometry of the overlay process. Handling and preparing the themes is up to the GIS analyst. Under the simplest possible configuration, GIS layers are all converted to binary maps, and an overlay then sifts the map space to leave open the areas that satisfy the selection criteria in use. This is the case in the simple overlay analysis and duplicates in the GIS methods that were worked out using transparent overlay maps and blacked out areas on the transparencies. Many of these methods date back to the turn of the twentieth century.

Task 8. Translate the following sentences into English.

Застосування ГІС-технологій в якості ядра при побудові перерахованих систем зумовлює можливість їх (систем) створення на єдиній методологічній основі, незалежно від рівня використання (регіон, галузь, акціонерне товариство, гірничодобувне підприємство). Це дозволяє в значній мірі уніфікувати і систематизувати програмні та технічні засоби, що застосовуються в гірничодобувних галузях промисловості, і виробити єдину стратегію інформатизації і технічного переозброєння підприємств.

Крім цього ГІС-технології надають можливість інтегрувати в єдине інформаційне середовище алгоритми вирішення багатьох прикладних задач, що є надзвичайно важливим при створенні проблемно-орієнтованих автоматизованих систем гірничого виробництва на основі програмно-алгоритмічних засобів, розроблених у різних наукових колективах і, як правило, не доведених до кінцевого програмного продукту.

Варіант 4

Task 1. Give the written translation of the following sentences into your native language. Underline and define the forms of the Infinitive.

1. We know Ray Tomlinson to initiate using the @ sign to separate the names of the user and their computer in 1971.
2. A special code for the '@' character is known to have been introduced to the Morse code in 2004.
3. Information turned out to be shared in a new way.
4. We persuaded them not to write down the information.
5. Messages are allowed to be passed between different computers.

Task 2. Give the written translation of the following sentences into your native language. Underline the forms of Participle I and Participle II.

1. Almost all GIS packages now either allow interactive modification of map elements moving and resizing titles and legends.

2. Shade sequences should be even following from dark to light, with dark usually being high, and light being low.
3. While statistics are useful in demonstrating that an error is present, and that it has an impact on the aggregate statistical descriptors, the GIS can help us to isolate exactly which readings have caused the problem.
4. This is one way that we can determine whether the largest and smallest measured elevations are reasonable.
5. We do not have this option if we have only one number or reading - we have no choice but to use it!

Task 3. **Put the verbs in brackets into the correct tense form and underline them. Mind the Sequence of Tenses.**

1. If we _____(to have) three readings and they disagreed, we _____(can average) them, reject one reading that was obviously wrong.
2. The challenge _____(to be) to find numbers that _____(to say) the same thing.
3. Geographic inquiry _____(to examine) the relationships between geographic features collectively to help describe and understand the real-world phenomena that the map _____(to represent).
4. A sequence from light yellow to orange with a slight color change _____(to look) right, but a sequence from red to blue across the rainbow _____(to make) the map look like a decorated Easter egg!

Exercise 4. Read the text. Find the English equivalents to the following terms:

1. особые требования _____
2. частые переработки и корректировки _____
3. система гражданского назначения _____
4. система производственных записей _____
5. сравнения с (географическим) геообразцом _____

6. комплексный пакет программ _____
7. пользовательский интерфейс _____

By the late 1970s all of the necessary parts of a GIS existed as isolated software programs. The largest gap to be filled was between the relational database manager and the programs that dealt with plotting maps. The specific demands of hardware devices from particular manufacturers kept this as a constantly evolving field, with frequent rewrites and updates as systems and hardware changed. Later, the device independence attributable to common operating systems such as Unix and computer graphics programming standards such as GIS, Core, and PHIGS led to a narrowing of this chasm, to the point where today it remains as barely a discernible dip in the GIS ground. The scene was set for the arrival of the first true GISs.

One of the earliest civilian systems to evolve all the capabilities of a true GIS was the CGIS (Canadian Geographical Information System), mostly because this system was the first to evolve from an inventory system toward doing analyses and then management. Essential to the emergence were the georeferencing and geocoding of the data, database management capability, a single integrated software package without separate, stand-alone elements, and a single user interface.

Exercise 5. Complete the sentences with the following words:

examination theme idea Internet
immense revolution significant

1. There is still an_____ amount of work to be done.
2. All got the information from the_____.
3. It might be an _____ to try again later.
4. Careful _____ of the ruins revealed an even earlier temple.
5. The naked male figure was always the central _____ of Greek art.
6. A _____ in information technology is taken place.

7. Your work has shown a _____ improvement.

Exercise 6. Read and translate key terms and definitions.

Topographic map – a map type showing a limited set of features but including at the minimum information about elevations or landforms.

Flow map – a linear network map that shows, usually by proportionally varying the width of the lines in the network, the amount of traffic or flow within the network.

Dot map – a map type that uses a dot symbol to show the presence of a feature, relying on a visual scatter to show spatial pattern.

Network map – a map that shows as its theme primarily connections within a network, such as roads, subway lines, pipelines, or airport connections.

Reference map – a highly generalized map type designed to show general spatial properties of features.

Task 7. Read the text. Write down the text and give the written translation into your native language.

So far we have covered the various map types. The GIS user should think of these as a set of possible methods, to be used when the GIS data to be shown have a given set of characteristics. Earlier in the book we classified features on a map into those that are points, lines, areas, and volumes. Obviously, the nature of the map data in the GIS is different for each of these. A three-dimensional location, for example, usually needs latitude, longitude, and elevation. In addition, the type of attribute information determines what mapping methods can be used.

The types of maps make certain assumptions about the nature of the attributes themselves, not just their graphic representation. For example, a reference map that shows cities has point information and text attributes - the names of the cities. The proportional circle map requires that for every point the attribute must be an integer or a floating-point number. A choropleth map requires a floating-point number that has been grouped into shade categories.

Task 8. Translate the following sentences into English.

В основі всіх розроблюваних із застосуванням ГІС-технології систем лежить єдина інтегрована реляційна база даних (БД). Структура цієї бази даних відповідає інформаційним потребам реалізуються в системі завдань. Для багатьох гірничо-геологічних додатків інформація, що зберігається в БД, може включати в себе не тільки текстові та числові дані (що традиційно для реляційних СУБД), але і первинні, найбільш відповідальні просторові дані - координати точок маркшейдерської зйомки.

Велика частина координатних даних систем зберігається у форматі покриттів системи ARC / INFO. Зв'язок даних в покриттях ARC / INFO і таблицях СУБД реалізується на основі використання унікальних ідентифікаторів об'єктів.

Варіант 5

Task 1. Give the written translation of the following sentences into your native language. Underline and define the forms of the Infinitive.

1. The text was certain to have been read by all users without problems.
2. He failed to contact the company as email hadn't been known.
3. It is not easy to get spammers stop sending unwanted messages.
4. We recommend you to post your address publicly when absolutely necessary.
5. One British psychologist claims to have identified a new mental disorder caused by too much information.

Task 2. Give the written translation of the following sentences into your native language. Underline the forms of Participle I and Participle II.

1. A very limited few GIS packages include cartographic design help in their editing of graphics, defaulting to suitable color schemes.
2. Of increasing interest in recent years has been the development of GIS functions that support data in standard exchange formats.

3. Geocoding must include at least the *input* of scanned or digitized maps in some appropriate format. The system should be able to absorb data in a variety of formats, not just in the native format of the particular GIS.
4. Some of the early computer mapping systems had already devised many GIS functions by this time, however.
5. Choropleth maps usually establish value by shading, pattern, or color intensity, but rarely by color as such.

Task 3. **Put the verbs in brackets into the correct tense form and underline them. Mind the Sequence of Tenses.**

1. If the area _____(to have) neighboring areas, we _____(to count) them or determine the average length of the area's boundary shared in common with a neighbor.
2. Cartographers _____(to study) the symbolization aspect of design in detail, and more than a few rules of thumb _____(to exist).
3. GIS software did not suddenly appear as if by magic. There _____(to be) a lengthy period leading up to the first real GISs during which the breed _____(to evolve) rather rapidly.
4. At first, GIS packages _____(to have) unsophisticated user interfaces, and many actually _____(to make) the user write short computer program-like scripts.

Exercise 4. Read the text. Find the English equivalents to the following terms.

1. положение, расположение рядом _____
2. интенсивность _____
3. одновременный контраст _____
4. насыщенность (цвета) _____
5. оттенок, тон _____
6. фон _____
7. десятичная величина _____

Color is a complex visual variable. Colors are often expressed as red, green, blue triplets (RGB) or sometimes as *hue, saturation,* and *intensity* (HSI). These values are either determined by the hardware device (e.g., 8-bit color allows a total of 256 colors from any of 256 • 256 • 256 combinations of individual values of RGB) or are decimal values of HSI between zero and one. For example, in RGB, a mid-gray would correspond to [128,128,128]. It is possible to translate directly between the RGB and HSI representations of color. Whereas RGB values are simply the degree to which the respective colored phosphors of the monitor emit light, HSI is closer to the way in which people perceive color.

Hue corresponds to the wavelength of light, going from red at the long-wave end of the visible light spectrum to blue at the other end. *Saturation* is the amount of color per unit display area, and *intensity* is the illumination effect or brightness of the color. Cartographic convention dictates that hue is assigned to categories and that saturation or intensity is assigned to numerical valve. When several hues appear in juxtaposition on a map, the colors are perceptually altered by the eye, a phenomenon known as *simultaneous contrast.* Thus maps that use several hues, even as background and line color, should be designed with caution. In addition, the eye's ability to resolve contrast varies significantly with hue, highest in red and green and lowest in yellow and blue.

Exercise 5. Complete the sentences with the following words:

uphill *identified*

health *assist* *purpose* *vehicle* *linked*

1. The _____ of the book is to provide complete money.
2. Exhaust fumes are bad for your _____.
3. Are you the driver of this _____?
4. The last part of the race is all _____.
5. The video cameras are _____ to a powerful computer.

6. The bodies were _____ as those of two suspected drug, dealers.
7. We'll do all we can to _____ you.

Exercise 6. Read and translate key terms and definitions.

Cartographic elements **-** the primitive component part out of which a map is assembled, such as the neat line, legend, scale, titles, figure, and so on.

Clarity **-** the property of visual representation using the absolute minimum amount of symbolism necessary for the map user to understand map content without error.

Credit - a cartographic element in which the sources, authorship, and ownership of the map and the map attributes are cited, often including a date or reference.

Ground **-** the part of the body of the map that is not featured in the figure. This area can include neighboring areas, oceans, and so on. The ground should fall lower than the figure in the visual hierarchy.

Figure **-** the part of a map that is both referenced in the map coordinate system rather than the page layout coordinates and that is the centre of the map reader's attention. The figure is contrasted against the ground, or background.

Task 7. Read the text. Write down the text and give the written translation into your native language.

The design of a map is a complex process. Good design requires planning, achieving visual balance among map elements, following conventions, employing the design loop, and correctly using symbols and map types. Without consideration of design, and certainly without having all the required map elements, however impressive it may look on a computer screen, the product is just not as effective. If the map is the result of a complex GIS process, good design is even more important to the person who will have to interpret the map. As we have seen, the relationship between cartography and GIS is a close one.

While making a map is often given little thought in the GIS process, it is nevertheless an important stage because it is using maps that particularly distinguishes GIS as being a different scientific approach, and it is the map that has

the primary visual impact on the GIS user or decision maker using GIS. Just a little extra care and attention to detail at this final stage can lead to immense improvements in the finished GIS product and to the perception that the entire information flow used in the GIS process is professional and complete.

Task 10. Translate the following sentences into English.

Основні базові функції роботи з даними (як просторовими, так і атрибутивними) виконувалися з використанням внутрішнього мови ArcView (Avenue). Прості програми розрахунків і побудов також створювалися на Avenue.

Мова Avenue дозволив організувати динамічна взаємодія систем із зовнішніми завданнями, використовуючи протокол DDE в середовищі Microsoft Windows і протокол RPC в середовищі UNIX. Крім того, використовувалися бібліотеки динамічного компонування (DLL) в середовищі Microsoft Windows. Зазначені механізми дозволили реалізувати в системах складні розрахункові програми, що вимагають високопродуктивної обробки числових даних. Ці програми розроблялися з використанням універсальних алгоритмічних мов програмування (наприклад, CI + +).

Зміст

Навчальне видання

Методичні вказівки до виконання самостійної та контрольної роботи з дисципліни ‘Іноземна мова професійного спрямування’ (англійська мова) для студентів 2 курсу заочної форми навчання напряму 6.080101 «Геодезія, картографія та землеустрій»

Укладач: **КРОХМАЛЬ** Алла Миколаївна

Відповідальний за випуск *І. О. Наумова*

Редактор *З. М. Москаленко*

Комп’ютерне верстання *А.М.Крохмаль*

План 2011, поз. 541М

Підп. до друку 08.06.2011 Формат 60х84/16
Друк на ризографі. Ум. друк. арк. 2,4
Зам. № Тираж 50 пр.

Видавець і виготовлювач:
Харківська національна академія міського господарства,
вул. Революції, 12, Харків, 61002
Електронна адреса: rectorat@ksame.kharkov.ua
Свідоцтво суб’єкта видавничої справи:
ДК № 4064 від 12.05.2011 р.